MEETING MINUTES (FINAL)

CITY OF TUCSON HABITAT CONSERVATION PLAN
Technical Advisory Committee Meeting
Wednesday, July 18, 2007, 1:00 – 4:00 p.m.
U.S. Fish and Wildlife Service Office
Tucson, Arizona

ATTENDEES

City of Tucson (COT) Habitat Conservation Plan (HCP) Technical Advisory Committee (TAC) members present:
Rich Glinski (Arizona Game and Fish Department, *retired*)
Dennis Abbate (Arizona Game and Fish Department)
Ralph Marra (Tucson Water Department)
Trevor Hare (Sky Island Alliance/Coalition for Sonoran Desert Protection)
Guy McPherson (University of Arizona School of Natural Resources)
Marit Alanen (US Fish and Wildlife Service)

Other Attendees present:
Leslie Liberti, (City of Tucson – Office of Conservation and Sustainable Development)
Ann Audrey (City of Tucson – Office of Conservation and Sustainable Development)
Frank Sousa (City of Tucson – Office of Conservation and Sustainable Development)
David Jacobs (Arizona Attorney General's Office – Arizona State Land Department)
Bill Zimmerman (Pima County Regional Flood Control District)

1. Minutes
Several changes were suggested for the June 6 draft meeting minutes. Once corrected, the minutes will be finalized.

2. Updates
Herbicide spraying of buffelgrass is ready for Sentinel Peak (a.k.a. "A-Mountain"). It was also noted that there are many training opportunities for buffelgrass spraying.

The City of Tucson (COT) Office of Conservation and Sustainable Development (OCSD) will be developing a staff position for public outreach.

Pima County received $175,000 to finalize their monitoring program. The question was asked about how the COT Habitat Conservation Plan (HCP) can coordinate with this. *[Action Item: OCSD staff will talk to Kerry Baldwin and Julia Fonseca of Pima County about how the COT HCP and Pima County's monitoring program can overlap.]*

3. Report on the Lee Moore Wash Basin Management Study
Bill Zimmerman, Pima County Regional Flood Control District, presented a report on the Lee Moore Wash Basin Management Study. He began by showing the boundary of the watershed. Pima County Regional Flood Control District (PCRFCD) found this to be the highest priority in

proactively planning for future development. $1,100,000 has been funded, with Stantec working as the primary consultant. They are currently doing existing conditions development. COT is a full partner, with Jane Duarte serving as the primary COT contact, though Pima County is providing all of the funding. Bill reviewed the steps they are at in the process.

Nine major watercourses are within the study area and for those washes with distributary flow, they are using 2-dimensional flow models. They have had a number of public involvement and stakeholder group meetings. One focus area is the drainage in the Summit Neighborhood area where flooding frequently occurs. They are not conducting any additional environmental studies. The goal is to have Rules of Development (RODs) that are adopted by the Pima County Board of Supervisors and COT Council. They expect to be finished by June 2008.

Bill pointed out the constraints in the study area due to intensive riparian areas in this watershed. One ROD may be to stay out of major watercourses. The western boundary stops at San Xavier District land. The Town of Sahuarita is currently not included in the study area, but will likely annex much of the land in this area. Pima County will start developing the RODs by the end of the year. Bill plans to have stakeholders involved as they prepare the draft RODs, starting with public stakeholders. There are no assumptions or opinions now about what the RODs might be. One goal of the ROD is that land buyers know they will have to contribute to construction costs due to drainage challenges there.

There are possibilities for synergy with the COT HCP and Pima County flood control strategies. Frank noted that the COT has basin management plans in some locations that affect developers. Using reclaimed water to irrigate vegetation in detention basins could be an option. Trevor asked about the water quality implications of introducing reclaimed water into the riparian areas. Bill thought we should generate multiple solutions for managing water quality, such as collecting clean watershed runoff in big basins, but letting subdivision runoff flow freely. One possible idea it to require first flush water quality approaches before water goes into basins. Pima County will be looking at water quality from stormwater runoff. Frank noted that the National Pollutant Discharge Elimination System (NPDES) standards will apply to dischargers. Trevor said that toads are of interest, but breed in COT washes now, which have poor water quality.

Trevor observed that the backwards “L-shape” of one proposed conservation area within the HCP expanded Southlands planning sub-area (“expanded Southlands planning sub-area” hereinafter referred to as “Southlands”) would capture some headwater areas of the Lee Moore Wash, which is beneficial. In the upper areas, Trevor noted that there are likely to be many road crossings, much of which are unpaved dirt. Bill noted that developers need to comply with Pima County street standards.

Bill noted that mapping distributary flow has been the biggest challenge of the study so far. Pima County will make their mapping available to developers, who can then refine it for specific sites.

4. Southlands Discussion

Leslie picked up the discussion from the last meeting regarding conservation concepts for the Southlands. Three different major area approaches involve:

1) Areas outside Pima County's Conservation Land System (CLS) (Leslie noted that areas favorable for the pale Townsend's big-eared bat (PTBB) matched well with the CLS);

2) The Cienega Creek Drainage, and;

3) Areas inside the CLS.

Leslie posted a large map with an orthophoto over the CLS (Note: There was no distinction between multiple use and biological core on that map version). She noted locations of master planned communities, developed areas, and Arizona State Land Department lands (i.e. State Trust lands). Potential cactus ferruginous pygmy-owl (CFPO) breeding habitat, lesser long-nosed bat (LLNB) foraging areas, and saguaro cactus locations were shown as well. She also indicated the land areas draining to Cienega Creek. Ranch estates need to be added. The needle spined pineapple cactus (NSPC) generally occurs in Cienega Creek drainage areas.

Focusing on the CLS area, the question was posed: "What additional strategies are needed in the CLS area?" Trevor is interested in seeing the Rules of Development for Lee Moore Wash. Trevor asked how an 80 percent set aside here would be accepted. Leslie noted that we want to make recommendations to the Arizona State Land Department (ASLD) for mitigation banks, which could be in this area and should be identified. Leslie said that some lands may not be annexed, so they will be protected by the CLS. Currently, the COT cannot protect land to the same extent as the CLS. Trevor asked about voluntary set aside incentives, which Leslie said would involve Endangered Species Act (ESA) compliance. Given the delisting of the CFPO, the small range of LLNB, and the fact that the Pima pineapple cactus (PPC) is a plant [plants are treated differently than animals under the ESA], there is not much of a legal incentive under the ESA now.

The area outside the CLS to the west that is slated for development is part Bureau of Land Management (BLM) land and part private ownership. Leslie noted that connectivity through the southwest area will be somewhat limited by development. Trevor felt connectivity will persist because developers will have to protect 95 percent of the bottom of the backwards "L-shape" since they will have to get a rezoning and then conditions for protection will be required.

Leslie asked Dennis how this approach works for the CFPO. Mountain ranges used to be thought of as dispersal barriers, but Dennis has telemetry records that support CFPO crossing over the mountains, sometimes through passes. Dennis asked how much building density is expected. Leslie thought development would be relatively high. Dennis noted that CFPO activity areas in the northwest part of Tucson included developments with no more than one residence per acre. In more densely developed areas, animals may circumvent or turn around upon coming in contact with these potential barriers. CFPO have also circumvented the Sierrita Mountains. Rich noted the new regime of captive breeding. He wondered about releasing captive-bred CFPO in this area to see if they will breed because the landscape interfaces with humans and is a little higher in elevation. Dennis said that while CFPO have not been seen here, there have not been many surveys made to try to find them either. Rich noted that the Altar Valley is a little higher in elevation and CFPO have been observed there. Dennis thought the landscape components

(perches, cover, breeding cavities, etc.) were more important than elevation. Dennis wondered if CFPO could move off to the northeast to disperse. There are historic records of CFPO in the Sabino Canyon area.

Leslie asked what assumption should be made about "steering" the CFPO. Trevor noted that the corridor is protected to the south, where there are ranch estates then the Coronado National Forest as one moves south. Leslie asked if CFPO were deflected from this area, where they would go. Several members of the TAC stated that they would most likely go to Cienega Creek. The Davidson Canyon overpass is big. Trevor noted that the Interstate 10 freeway (I-10) sits at landscape elevation in the southeast area. From Davidson Canyon going west, one starts entering hilltop habitat, but that can be a little sparse, so he would expect CFPO to follow riparian areas.

Trevor suggested running one corridor to the north, northeast, then one along the bottom adjacent to the forest. Dennis noted that saguaro density decreases in this area as you move further east until they no longer occur. However, Trevor thought that there is decent structure along the washes because of the large mesquites in the landscape. Rich noted, once they get to Cienega Creek, CFPO can just go northeast and avoid Davidson Canyon. Whether CFPO will cross the roads here will depend on road crossing construction. There is no record of "take" of birds or animals in terms of road mortality here.

Leslie asked how to get CFPO across I-10. Rich noted that the drainages flow parallel to I-10. Dennis said that in tracking in the Altar Valley, CFPOs may follow drainages for a short distance, then fly up to a ridge and change to a different drainage. As long as uplands have adequate perch structure, CFPO will use uplands.

Trevor noted that there have been discussions of road crossings for wildlife. I-10 is to be reconstructed east of town. Ralph noted recent conversations about a new freeway bypassing the City, one plan of which included an alignment through Avra Valley. This brought up the question of how it would affect the HCP. Trevor said that almost everyone at public meetings wants a bypass along the current I-10 alignment. There could also be a bypass that crosses the Southlands, including a truck route connecting I-19 to I-10. Dennis expressed concerned about the interstate freeway being the cause of ruling out options for habitat here since there is decent habitat around I-10. Instead, he mentioned that he thinks connection across the freeway is important to provide a potential secondary movement corridor or crossing option.

Leslie noted that the northern part of the Southlands is outside the CLS and felt it would, therefore, become high-density development. She added that the TAC needs to prioritize where optimal crossing locations are and where access to crossing locations should be left undisturbed. Dennis would like more locations identified and protected, such as at Vail Road and I-10. Trevor noted priority locations one, two, and three on the map. Trevor said that the TAC does not know what corridors should look like for different species. Rich noted that if ridge tops were vegetated (i.e. with mesquite, ocotillo, etc.), they would provide more cover for animals. Trevor noted that the Cienega Creek drainage area has lots of cacti that are attractive to our HCP Species of Concern.

Possible Regional Transportation Authority (RTA) funded wildlife crossings are being identified by COT in conjunction with the Arizona Game and Fish Department (AGFD). This is the time to identify structure and research needs related to COT RTA priorities. Ann explained that the RTA has allocations for research, construction, and monitoring. Leslie continued by identifying crossing priorities on the map. The Davis-Monthan paddle may overlap slightly into the CLS and provides opportunities. Dennis said that the TAC should consider primary and secondary corridor areas based on relative restrictions and prioritization. Trevor wants both crossings shown on the map.

Leslie asked what preserve crossings should look like for CFPO. Dennis noted that one tracked CFPO came within 1 to 1.5 miles of I-19, and in Marana within 0.7 mile from I-10. Dennis thought the noise from the interstate freeways might have helped deflect CFPO. Trevor said that existing bridges around Davidson Canyon are sufficient to allow CFPO in the drainage to pass. If CFPO pass from hilltop to hilltop, they will be higher than truck profiles.

Dennis noted that CFPO need a place from which to launch and move the 100 meters necessary to get across freeways. They need a perch to land on as well. Yet, if perches and vegetation structures are placed by the road, then barn owls and other raptors could be negatively impacted. Dennis also mentioned that a researcher in Mexico has observed CFPO selecting "edges" such as road corridors, where it is easier from which to catch prey. Dennis said that prey density could be a study topic. He continued by saying that we do not want animals hunting along roads, but instead, we need to get them across as fast as possible.

Leslie asked what structure should look like for CFPO crossings. Dennis thought that 100 meters or less is needed from perch A to perch B. Dennis said that the taller the perch structure, the higher they will stay during their transit. I-10 is probably close to 100 meters wide, and it is typically elevated above adjacent land. Dennis said that they can fly 40 to 100 meters comfortably, and can potentially fly twice that distance if conditions are favorable. Leslie said in that case, the TAC should concentrate on an area that does not have freeway on and off ramps. Dennis felt that if there is interim landscaping around the freeway, then that would benefit the CFPO. Two possible crossing locations are 1) east of the Vail exit and 2) the Davidson Canyon crossing. *[Action Item: Dennis will go to the possible CFPO crossing sites and report back to the TAC on what he thinks would be appropriate crossing conditions to create. Trevor will take photos as well and bring them back to the TAC.]* Dennis said that CFPO do occasionally use artificial structures if they satisfy their needs. Several observations of CFPO on sign posts, power lines, and a balcony railing have been documented in previous years.

Trevor wondered if they have to rebuild the Vail Road overpass and, if so, whether some vegetation could be added to improve crossing potential. Leslie said that the Vail crossing location provides crossings in the northern part of the CLS. Rich said that he does not think CFPO will use the northeast corridor as much as the east corridor. Trevor said that Davidson Canyon is the primary crossing, but also wants additional crossings through some low density areas, protected washes, parks, etc. In his opinion, the bottom of the backwards "L-shape" was a primary linkage. Criteria for linkage land development would be single family residential at 0.3 residences per acre. CFPO have been seen using 1-acre lots in northwest Tucson, but are no longer present. David said this is more likely to be clustered housing with some percentage of

open space. It does not have to be clustered specifically, but, from David's perspective, it is better not to have 3-acre lots, and, instead, concentrate the development. Flow is generally north of northwest here, with vegetation structure consisting of dense mesquite, and some true riparian trees such as desert hackberry, western soapberry, and desert willow. This is the Mount Fagen area. Deeper cut channels in this area would not be developed, so these could contribute to providing areas for CFPO to move through. CFPO will need adequate perch structures between washes for quick flights between cover areas. Deeper cut channels provide resting and feeding places. Shrubbier vegetation on the ridges may allow for safer movement through the area.

Rich recommended 60 percent open space for dispersal habitat for the bottom part of the backwards "L-shape." Dennis said, ideally, from a biological basis, we would want 80 percent (depending on quality, higher quality may meet needs with less while lower quality may need the most) open space set aside to which Trevor concurred. Leslie asked why if other areas have lower percentages of set aside, then what is the basis for 80 percent. Trevor said there are no other standards for dispersal habitat specifically.

Frank has created a rough draft layer of riparian habitat envelopes in the planning areas. Rich would like a map that zooms in on Davidson Canyon linkages. Dennis emphasized again the importance of structure. CFPO like larger trees, as found in landscaped areas, but so do predators, creating a possible sink scenario. For example, Great horned owls, Western screech-owls, and red-tailed hawks, utilize larger trees for hunting perches. There are other threats from anthropogenic effects in urban areas (e.g. collisions with cars, etc.).

Rich said that it might be important to follow closely to the border of the Santa Rita Experimental Range in terms of CFPO habitat protection. However, it may be that development will ultimately drive CFPO out of the area. Rich said that we do not have good data on comparison between cluster development and standard development. He wondered if there was a downside to cluster development, since all the cluster area is lost. The paper Cathy distributed said there was no advantage to the cluster, but it may have depended on the species involved. David said some areas may have open space but it might include recreational open space in that area. This applies to the lower southeast corner of the bottom of the backwards "L-shape."

Rich asked if there will be defined "wildlife corridors" in this area that are treated as such. Leslie said the TAC recommendations need to be specific to communicate this. Rich suggested defining the linkages and applying guidelines that planners and developers can use. These would depend on the species.

Ralph commented that the TAC should acknowledge uncertainty when recommendations are made, given that biology is uncertain. We need to be able to defend the recommendations based on the TAC's scientific expertise and available data. Rich concurred. Rich also said that, from a purely biological standpoint, it would be ideal to allow movement from the northeast, crossing the freeway to the northern fringe of the Santa Rita Experimental Range, and to the Santa Cruz. This would maintain genetic exchange through corridors for the Species of Concern including LLNB and Pima pineapple cactus (PPC). It was mentioned that PPC need a maximum of a one mile distance for bee travel in terms of the location of mitigation banks. Leslie noted that the southern part of the CLS is a higher priority than the northern part for the lesser long-nosed bat

(LLNB) and CFPO. For PPC, the southern part is also important. If there is another round of cactus surveys, we may want to focus in this area.

LLNB are roosting in the area on the map bounded by the blue line, which is also foraging habitat for both the LLNB and pale Townsend's big-eared bat (PTBB). Both bats roost in structures. According to Dennis, with some rare exceptions, LLNB may use structures for temporary night roosts, but will return to cave environments for their primary roost. PTBB tend to roost in small numbers. Linwood said (at a previous meeting) generally caves, mines and lava tubes provide roosts where the temperature is cold but not freezing. They may use old buildings as night roosts. Winter roosts usually have fewer than 50 bats.

LLNB roost in larger numbers in the winter, where, according to Trevor, they roost in old barns, bridges, etc. Dennis countered by asking if there is a citation for this claim and added that little is known about winter roosts in Mexico, but those that are known are in natural caves and mines. It was noted that Scott Richardson of USFWS created a polygon on a map indicating the topography was sufficient for possible caliche caves, etc.

Trevor raised the topic of the secondary linkage, which includes protected washes, open space parks, and other potential habitat. In the primary linkage, the nature of land development will likely be amenable to conservation goals. In the northern secondary area, the development pressure is likely to be more concentrated, so the TAC should be more specific about the corridor it wants. The COT Hillside Development Zone (HDZ) will help in land conservation efforts. Also, according to Trevor, Pima County's Buffer Overlay Zone Ordinance (BOZO) might help to create protected boundaries.

Leslie asked if primary linkage recommendations will change when they get into breeding habitat on the southwest part of the Conservation Land System. The individual cactus and large trees are protected by the Native Plant Preservation Ordinance (NPPO), but the habitat itself is not protected. Trevor recommended 80 percent protection and wondered if there were high-density saguaro areas that need complete (100 percent) protection. It was noted that there is a need to talk with Julia Fonseca of Pima County Regional Flood Control District about her perspective on saguaro surveys. Westland Resources worked with soil type in the Tortolita Mountains with regard to saguaros. Frank mentioned that the oblique shadows of saguaros make them easy to locate in aerial imagery. The "Local live" website allows one to see images from four different angles. Tucson police helicopters can sometimes fly one around. Also, Cooper Aerial obliques might be available. For nonprofit organizations, LightHawk will fly a site for free for the purpose of getting aerial imagery.

Trevor said it is important to keep housing out of high density saguaro patches, so these areas could be used for mitigation banks or set asides. He thought that saguaros and PPC may not typically be found in the same place. The location of Scott Richardson's CFPO polygon for breeding habitat may be due to the fact that there are patches of saguaros in this area. Trevor wants to map higher density stands within the polygon. This could be divided into zones of higher or lower saguaro densities. Rich would like to know what the best linkage is within this, but doesn't know if this data is needed now. Leslie said it is better for landowners to have areas pre-specified instead of waiting for planners to look at the land. David felt this was easier for

landowners to determine than riparian quality, etc. Trevor said there could be a saguaro protected area, such that if saguaros reach a certain density, it triggers certain requirements. Rich said this is potential CFPO habitat based on existing conditions. Trevor said Scott should narrate his criteria for this polygon. Dennis pointed out isolated pockets of saguaros separated by appropriate cover and foraging opportunities in between these pockets, is still potentially good CFPO breeding habitat. Ralph asked what specific data we have to defend a theoretical 80 percent restriction of this land. Frank will check aerials for this site to determine saguaro density.

It was suggested that someone talk to Julia Fonseca about her efforts to run a quick analysis of soils in this area and see how these match in terms of mapping. Leslie said that saguaro locations were based on soil age and whether the area contained ridges or slopes. Trevor added that it was based on soil grain size. Instead of relying on imagery and secondary indicators, one could drive around the area and make direct observations. Leslie said that the U.S. Fish and Wildlife Service (FWS) requires that we adequately explain the impact and value of recommended mitigation measures. In other words, we need to be able to describe the value of the efforts and be able to answer questions about whether or not the saguaros occur and in how large of an area.

Leslie concluded by saying that we need to get a better understanding of saguaros in the Southlands, find bridge locations, and Dennis and Scott can look at Vail locations. In terms of next steps, she said that the TAC needs to determine how to fine tune the high priority corridor and identify important features. We can use Frank's GIS layers of riparian habitat to quantify the protection of these areas. After this, we can move on to Cienega Creek and the northern part of the CLS.

The next meeting will take place on August 15, 2007.

Trevor asked what the COT requirements were for open space within cluster housing. *[Action Item: OCSD staff find and report on the COT requirements for open space within cluster housing.]*

4. Call to audience
(no audience present)

5. Adjournment

Summary of Action Items

- OCSD staff will talk to Kerry Baldwin and Julia Fonseca of Pima County about how the COT HCP and Pima County's monitoring program can overlap;
- Dennis will go to the possible CFPO crossing sites and report back to the TAC on what he thinks would be appropriate crossing conditions to create. Trevor will take photos as well and bring them back to the TAC, and;
- OCSD staff find and report on the COT requirements for open space within cluster housing.